Using SCORM Content with Saba

Version 1.0

For use with the following Saba releases:

- **Saba 3.5**
- **Saba 3.4**

Copyright

Trademarks

Contacting Saba

Telephone	(650) 696-3840
Fax	(650) 696-1773
Mailing Address	2400 Bridge Parkway Redwood Shores, CA 94065-1166 USA
Web	http://www.saba.com

Contents

Introduction

This document provides an overview of the SCORM specification for managing and tracking web-based learning objects and discusses the elements of the SCORM specification that are implemented in Saba's learning solution.

This document is intended for two audiences:

- Users of Saba's learning solution
- Saba's content provider partners

For users of Saba's learning solution, this document describes how to load and launch SCORM-compliant content in Saba.

For Saba's content provider partners, this document describes how to design SCORM-compliant interfaces within their WBT/CBT courses. These interfaces enable courses, learning objects or course players to interoperate and exchange data with Saba's learning solution.

Specifically, this document includes the following sections:

- Part I — Overview of SCORM
- Part II — Integrating SCORM Content with Saba

Please Note This document describes functionality that may not be included with the release of Saba that you are currently running. Until you have verified that your Saba release fully supports SCORM compliance, **you should use this document as a planning tool only**. Please contact your Saba Account Representative/Project Manager for release details.

Part I — Overview of SCORM

SCORM Conceptual Model

The SCORM specification addresses two critical but distinct aspects of learning content interoperability:

1. It defines an aggregation model for packaging learning content
2. It defines an API for enabling communications between learning content and the system that launches it

The key actors in the SCORM model:

- Learning Management Systems (such as Saba)
- Shareable Content Objects (SCOs)

SCOs are a standardized form of reusable learning objects.

An LMS is any system that keeps learner information, can launch and communicate with SCOs, and can interpret instructions that tell it which SCO to deliver next.

Other actors in the SCORM model are tools that create SCOs and assemble them into larger units of learning.

The following diagram illustrates the conceptual model used by SCORM to define interoperability

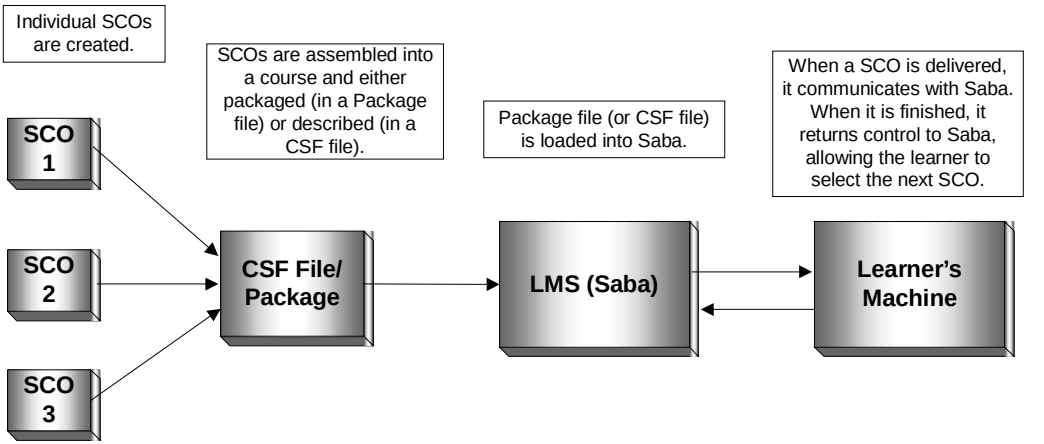

Figure 1: *SCORM Conceptual Model*

Content Aggregation

SCOs are self-contained units of learning. They can be used as building blocks to create larger units of learning (such as courses), but they cannot be broken down into smaller units. To assemble SCOs into a course, three things must be done:

1. The SCOs must be found and organized into a structure.
2. Instructions must be written that tell an LMS how to deliver the SCOs.
3. The SCOs and instructions must be bundled into a portable package.

This process is called content aggregation. It is important to note that a content aggregation can include instructions for navigating between SCOs but not for navigating within individual SCOs.

The current version of the SCORM specification (Version 1.2) adopts a content packaging format based on the Content Packaging specification developed by the IMS Global Learning Consortium. A SCORM package contains a manifest file that declares the contents of the package, describes the order in which the SCOs are to be delivered, and tells the LMS where to find the SCOs themselves. The physical resources represented by the SCO can be physically included in the package, or they can be referenced externally by the package.

Note Previous versions of the SCORM specification used a Course Structure Format (CSF) model to assemble SCOs into an aggregation. The CSF model did not allow for the bundling of resources into a physical package.

To make itself and its components more easily discoverable in a large, distributed online environment, a SCORM package can also include metadata records. A package can include metadata records describing the entire package as well as metadata records describing each individual SCO. The metadata used by SCORM is based on the IEEE Learning Objects Metadata (LOM) specification, which defines a library of metadata elements for describing learning objects and is compatible with the metadata used by the digital and online library community. Learning object metadata can include information about the title, author, version number, creation date, technical requirements and educational context and intent of a SCO.

Communicating with Content

Using method calls based on a JavaScript API, SCORM-compliant content can communicate at runtime with any LMS. The SCORM specification defines exactly what pieces of learner information can be exchanged between the content and LMS. This information includes learner profile information, such as the learner's name, the learner's ID, and certain learner preferences (e.g., physical device preferences) as well as results information, such as completion status, test scores, time spent, and number of attempts for each SCO.

In the SCORM model, content initiates all communication. When it is launched, the SCO tells the LMS it has started. When it wants something from the LMS, it asks for it. When it wants to update learner information, it sends the information. And when it is finished, it tells the LMS it is finished. This causes control to be passed back to the LMS, and the LMS decides which SCO will be delivered next.

SCORM Compliance Criteria

The SCORM specification defines conformance criteria for learning management systems and learning content in the following areas:

1. Learning Management Systems
2. Sharable Content Objects (SCOs)
3. Metadata
   a) Asset Metadata Application Profiles
   b) SCO Metadata Application Profiles
   c) Content Aggregation Metadata Application Profiles
4. Content Packages
   a) Resource Packaging Application Profiles
   b) Content Aggregation Packaging Application Profiles

LMS Conformance Levels

For learning management systems, SCORM defines three levels of conformance as follows:

- **LMS Runtime Environment Level I Conformance (LMS RTE-1)**
  - Is able to import and process a known conformant Content Aggregation Content Package as defined in Section 2.3 of the SCORM Content Aggregation Model1, and
  - Is able to launch a known conformant Sharable Content Object (SCO) as defined in Section 2.1 of the SCORM Content Aggregation Model1, and
  - Is able to launch an Asset as defined in Section 2.1 of the Content Aggregation Model, and
  - Provides and exposes an API Adapter as a Document Object Model (DOM) object and correctly implements all of the API functions as described in Section 3.3 of the SCORM Run-Time Environment1, and

- Correctly Implements support for all required SCORM Version 1.2 Run-time Environment Data Model Mandatory Elements as described in Section 3.4 of the SCORM Run-Time Environment1.

Note If the LMS incorrectly implements one or more SCORM Version 1.2 Run-Time Environment Data Model Optional Elements, and does not implement any other optional data model elements correctly, then the LMS is still considered to be LMS-RTE1 conformant as long as the criteria above are met.

- **LMS Runtime Environment Level II Conformance (LMS RTE-2)**
  - Is "SCORM Version 1.2 Run-Time Environment Conformant - Minimum" and
  - Correctly implements one or more (not all) of the optional SCORM Version 1.2 Run-time Environment Data Model Optional Elements.

Note If the LMS incorrectly implements one or more SCORM Version 1.2 Run-Time Environment Data Model Optional Elements, the LMS can still be considered LMS-RTE2 conformant as long as one or more other data model elements are implemented correctly.

- **LMS Runtime Environment Level III Conformance (LMS RTE-3)**
  - Is "SCORM Version 1.2 Run-Time Environment Conformant - Minimum", and
  - Correctly implements all of the optional SCORM Version 1.2 Run-Time Environment Data Model Optional Elements.

For more information about the SCORM compliance criteria, refer to the document entitled “Sharable Content Object Reference Model (SCORMTM) Version 1.2 Conformance Requirements”, which is available on the ADL web site at http://www.adlnet.com

Overview of Saba’s SCORM Compliance

Saba is certified by the ADL for full LMS RTE-3 conformance with the SCORM 1.2 specification (http://www.adlnet.org/index.cfm?fuseaction=certprodresults&certid=34). This is the maximum level of conformance validated bu the ADL’s testing organizations.

As such, Saba supports the ability to import, launch, and track any content designed in compliance with the SCORM 1.2 specification. Specifically, this includes support for the following capabilities:

- Import SCORM content
- Export SCORM content
- Launch SCORM content

- Track SCORM content and store learner results
- Record learner interactions data for each question on a test

Once imported, SCORM-compliant content can be edited using Content Builder, it can be published to the Learning Catalog for access by learners, or it can be exported.

When a learner on Saba launches SCORM-compliant content, Saba passes information to the content about the learner, such as profile and preference information and information about any bookmarks the learner might have set during previous visits to the content. When the learner completes a learning session, the content passes results information back to Saba. For tests, this information can also include the learner response, result, time spent, and relative weighting for every question on the test. Saba stores this information in the database and provides view access to learners and their managers.

Benefits of SCORM Compliance

To promote learning throughout the enterprise, Saba's learning solution deploys a web-based learning catalog that displays the learning materials selected by the Saba customer. These learning materials are provided by Saba's content partners. They include books, videos, tests, web-based (WBT) and computer-based (CBT) courses, audio tapes, instructor-led courses, and other educational content. Saba customers rely on Saba and its content partners to provide a complete learning solution that supports all members of the extended enterprise, including customers, distributors, employees and suppliers.

SCORM compliance makes it possible for Saba to manage and track online learning content, regardless of the vendor who produced it and without requiring the Saba customer to map any elements of the content to internal Saba data structures. Saba manages the purchase, registration, and launch of online learning content and communicates with the content application to exchange data in live time using an SCORM-defined communications protocol. This enables Saba to track and record information about the learner's interactions with the content, such as bookmarking, test scores, and timing information. Saba also can import a SCORM-defined package file provided by the content developer to load the course structure automatically.

Saba's SCORM compliance guarantees that **Saba's customers** can purchase SCORM-compliant learning objects and integrate them seamlessly into their learning solution. Saba will launch the content and track and record user interactions with it.

By designing to SCORM-compliance guidelines, **Saba's content partners** can ensure that the learning content they develop will interoperate and exchange data with Saba's learning solution. This positioning provides leveraged access to Saba's network of learning customers.

Part II — Integrating SCORM Content with Saba

Saba supports the ability to import and interoperate with any content designed in compliance with Shareable Content Object Reference Model (SCORM). SCORM is a specification developed by the Advanced Distributed Learning (ADL) initiative for standardizing the reusability and interoperability of learning content.

For more information about SCORM, see "How Is My SCORM Content Provided?" on page 11.

In Saba, interoperability with SCORM content includes support for the following capabilities:

- Import SCORM content
- Export SCORM content
- Edit SCORM content
- Publish SCORM content to the Learning Catalog for access by learners
- Launch SCORM content
- Track SCORM content and store learner results
- Record learner interactions data for each question on a test

Once imported, SCORM-compliant content can be edited using Content Builder, it can be published to the Learning Catalog for access by learners, or it can be exported.

When a learner on Saba launches SCORM-compliant content, Saba passes information to the content about the learner, such as profile and preference information and information about any bookmarks the learner might have set during previous visits to the content. When the learner completes a learning session, the content passes results information back to Saba. For tests, this information can also include the learner response, result, time spent, and relative weighting for every question on the test. Saba stores this information in the database and provides view access to learners and their managers.

How Is My SCORM Content Provided?

The SCORM specification is a rapidly evolving document. As the specification changes, it leaves behind legacy content designed in accordance with previous versions. To address this problem, Saba provides support for both the current version of SCORM and one version back.

SCORM Version 1.2

The current version of the SCORM specification (Version 1.2) defines an Aggregation Model for assembling content into a portable package. The package includes a manifest file that declares the contents of the package and can optionally include the physical content resources. The packaging format defined by the SCORM Aggregation Model is based on the Content

Packaging specification developed by the IMS Global Learning Consortium. For information on importing SCORM packages into Saba, see “Importing SCORM Packages” on page 15.

SCORM Version 1.1

The previous version of the SCORM specification (Version 1.1) defined a Course Structure Format (CSF) model for assembling content into a portable package. The CSF model defines the format for a single XML-based file that declares the contents of a course by defining the location for each of its components. The CSF model requires all components to be externally referenced; it does not provide the ability to package physical content resources.

Saba provides a format, Deployed SCORM, for importing CSF files (as well as IMS Manifest Files). For more information on importing SCORM CSF files into Saba, see “Importing Deployed SCORM Content” on page 18.

SCORM Metadata

At import time, Saba imports and stores the full SCORM metadata as an XML string. Additionally, Saba parses out the following data elements from the metadata record and maps their values to the content object attributes indicated.

SCORM Metadata Element	Saba Content Object Attribute
Language	Language
Description	Description
Keywords	Keywords
Requirement	Requirement
Requirement.type	Requirement.Requirement
Requirement.name	Requirement.Description
Requirement.minimumversion	Requirement.MinVersion
Requirement.maximumversion	Requirement.MaxVersion
Learning Resource Type	Resource Type

Note The Keywords attribute is supported as a search criteria for finding content in the Saba Content repository.

Hosting SCORM Content

Since SCORM-compliant content is accessed by calling a URL via HTTP, the content must be hosted on a machine with a running Web server. However, SCORM content will not run properly if the server attempts to access it as a client. This means that your SCORM content can only be accessed by clients other than the server.

For SCORM-compliant content to communicate with Saba, you must define a call-back address for the content server where your SCORM content resides. The call-back address is passed to the content at launch time and used by the content to communicate with Saba. For information on defining the call-back address, see "Specifying the Host Name of the Saba Server" on page 13.

SCORM Redirector

The SCORM Redirector provides a solution that allows customers to run SCORM content in a distributed environment. Distributed SCORM helps organizations avoid the inefficient and unscalable practice of either deploying all their SCORM content to the same server as their learning management system (LMS) or replicating a database into every content server. With the SCORM Redirector, SCORM content can be deployed anywhere and delivered through Saba to any learner's browser.

Specifying the Host Name of the Saba Server

When Saba launches a content element, it passes a URL-encoded launch string to the content application. The URL-encoded launch string includes the Saba session ID, any launch parameters provided by the content developer, and the Saba call-back address. The call-back address is the URL that the content application will use to communicate with Saba.

The call-back URL that Saba passes is based on the value provided for a user-configurable property called **AICC/SCORMHost**, which is defined in the SabaAdmin web administration tool (**SabaAdmin**).

To define the **AICC/SCORMHost** property, follow the steps below:

1. Log in to the SabaAdmin web administration tool:

   You can access the SabaAdmin web administration tool from any Web browser networked to the Saba application server by using the following URL:

   http://<*machine_name*>/SabaAdmin

   where:

   <*machine_name*> is the name of your Saba application server.

Note If you do not have the necessary privileges to access **SabaAdmin**, consult your Saba system administrator.

2. In the sidebar, click the **SabaWeb** link under **Site Administration**.
3. Select **Saba Learning Online**.
4. In the **AICC and SCORM host** field, enter the host name and port (if the host listens on a port other than 80) for the machine on which Saba is installed.
5. Click the **Save Settings** button.

Enabling SCORM Conformance Checking

Saba supports checking for strict conformance when running SCORM content. If strict conformance checking is enabled, only conformant SCORM content can be run/accessed by learners. If conformance checking is disabled, Saba allows any SCORM content to be run. By default, conformance checking is disabled.

To enable conformance checking, Saba provides a site-level property that can be set in **SabaAdmin**:

1. In the **SabaAdmin** sidebar, click the **SabaWeb** link under **Site Administration**.
2. Select **Saba Learning Online**.
3. In the **SCORM Conformance** field, enter a value of 1.
4. Click the **Save Settings** button.

Importing SCORM Packages

Content packages that are compliant with the SCORM Aggregation Model Version 1.2 specification can be imported into the Saba Content repository.

Note The content package must be imported as a ZIP file.

On import, Saba Content unpacks the file, reads the XML manifest, and deploys the content to a specified content server, where it will be available for access by learners.

Once imported, the SCORM-compliant content can be edited using Content Builder, it can be published to the Learning Catalog for access by learners, or it can be exported.

To import a SCORM package, follow the steps below:

1. Using the folder tree, navigate to the folder into which you want to import the content, and click the **Add new item** link inside the folder.

   or

   To import the content at the top level of the repository, click the **Add Content** link on the left-hand sidebar.

2. Select **SCORM Package** from the Content Format drop-down list.

3. Click **Next**.

   The ***Content Objects Details*** page appears.

4. Enter required and optional information in the fields on the page.

   The table below lists and describes these fields:

   Table 1: *SCORM Package Object Description Fields*

Field	Description	Required?
Name	Enter a name for the content object you are creating.	Yes
Communications Protocol	Select the version of the SCORM API used by the content to communicate with Saba. You can select either **SCORM 1.1 - 1.2** or **SCORM 1.0**. By default, **SCORM 1.1 - 1.2** is selected.	No
Player	By default, SCORM-compliant content runs in the Saba Player delivery environment.	No

Table 1: *SCORM Package Object Description Fields*

Field	Description	Required?
Security Domain	Use the Finder to select a security domain for the content object.	Yes
Language	Use the Finder to select the language in which the content you are importing is authored. You can select among the system-supported languages. In addition to providing information about the language of the content, the language you specify for content determines which learners can view the content (based on their locale) when they order a catalog item to which the content has been published.	No
Source Object	Select a content object to which the current object is related. Typically, this field is used in conjunction with the Clone operation for tracking the source object from which the current object was cloned. However, you might also want to use this field to indicate other types of relationships between content objects, such as the hierarchical relationship of a master course and each of its child components.	No
Version	This field is used for tracking versioned content objects. It is only used in conjunction with the Clone operation (with versioning). The **Version** field is automatically defined and is not editable.	No
Ready to Publish	Select this check box to indicate that the content is ready to be published to the Learning Catalog. If the check box is not selected, you cannot publish. **Note** The check box is selected by default.	No
Vendor	Use the picker to select the vendor from which the content you are importing was acquired. You can select among the vendors defined in the system.	No

Table 1: *SCORM Package Object Description Fields*

Field	Description	Required?
Content Type	Select a content type (course, assessment, document, image, etc.) that best describes the type or purpose of the content you are importing. The content type is informational only.	No
Available From/To	Enter the date range for which the content object is available to be published to the Learning Catalog. **Note** Currently, the system does not enforce this constraint. However, you can define business processes contingent on the information provided in these fields.	No
Target Folder	Use the picker to select the target folder to which you want to save the content object. By default, this field displays the target folder from which the import operation was invoked. If you invoke the import operation from the top level of the repository, the target folder is given as **Root**.	No
Description	Enter a text description of the content you are importing. **Note** If your SCORM Manifest file contains description metadata, the **Description** field is automatically populated during import.	No
Resource Types	Defines the specific type of content or intended application of the content. **Note** If your SCORM Manifest file contains resource type metadata, the **Resource Types** field is automatically populated during import.	No

5. You are ready to select the package file to import.

   In the **Content Server** field, use the picker to select the content server onto which you want to unpack the content package.

   Note The SCORM Redirector must be installed on the content server machine.

6. Use the **Browse** button to select the package file to import.

Note The package file must be in ZIP format.

7. After selecting the package file, click **Save** to upload the content and create/save your content object.

   On import, Saba Content unpacks the ZIP file, reads the XML manifest, and deploys the content to a specified content server, where it will be available for access by learners.

Importing Deployed SCORM Content

Content described using the SCORM Version 1.1 or 1.2 specification can be imported into the Saba Content repository. Deployed SCORM content can be imported as a URL pointing to a CSF file or IMS Manifest file.

The file is a manifest for a content aggregation, but does not itself contain content resources. As a result, Saba Content does not deploy the content resources to a content server.

Once imported, the SCORM-compliant content can be edited using Content Builder, it can be published to the Learning Catalog for access by learners, or it can be exported.

To import a SCORM CSF or IMS Manifest file, follow the steps below:

1. Using the folder tree, navigate to the folder into which you want to import the content, and click the **Add new item** link inside the folder.

   or

   To import the content at the top level of the repository, click the **Add Content** link on the left-hand sidebar.

2. Select **Deployed SCORM** from the Content Format drop-down list.

3. Click **Next**.

   The ***Content Objects Details*** page appears.

4. Enter required and optional information in the fields on the page.

   The table below lists and describes these fields:

   Table 2: *Deployed SCORM Object Description Fields*

Field	Description	Required?
Name	Enter a name for the content object you are creating.	Yes

Table 2: *Deployed SCORM Object Description Fields*

Field	Description	Required?
Communications Protocol	Select the version of the SCORM API used by the content to communicate with Saba. You can select either **SCORM 1.1 - 1.2** or **SCORM 1.0**. By default, **SCORM 1.1 - 1.2** is selected.	No
Player	By default, SCORM-compliant content runs in the Saba Player delivery environment.	No
Security Domain	Use the Finder to select a security domain for the content object.	Yes
Language	Use the Finder to select the language in which the content you are importing is authored. You can select among the system-supported languages. In addition to providing information about the language of the content, the language you specify for content determines which learners can view the content (based on their locale) when they order a catalog item to which the content has been published.	No
Source Object	Select a content object to which the current object is related. Typically, this field is used in conjunction with the Clone operation for tracking the source object from which the current object was cloned. However, you might also want to use this field to indicate other types of relationships between content objects, such as the hierarchical relationship of a master course and each of its child components.	No
Version	This field is used for tracking versioned content objects. It is only used in conjunction with the Clone operation (with versioning). The **Version** field is automatically defined and is not editable.	No

Table 2: *Deployed SCORM Object Description Fields*

Field	Description	Required?
Ready to Publish	Select this check box to indicate that the content is ready to be published to the Learning Catalog. If the check box is not selected, you cannot publish. **Note** The check box is selected by default.	No
Vendor	Use the picker to select the vendor from which the content you are importing was acquired. You can select among the vendors defined in the system.	No
Content Type	Select a content type (course, assessment, document, image, etc.) that best describes the type or purpose of the content you are importing. The content type is informational only.	No
Available From/To	Enter the date range for which the content object is available to be published to the Learning Catalog. **Note** Currently, the system does not enforce this constraint. However, you can define business processes contingent on the information provided in these fields.	No
Target Folder	Use the picker to select the target folder to which you want to save the content object. By default, this field displays the target folder from which the import operation was invoked. If you invoke the import operation from the top level of the repository, the target folder is given as **Root**.	No
Description	Enter a text description of the content you are importing. **Note** If your SCORM Manifest file contains description metadata, the **Description** field is automatically populated during import.	No
Resource Types	Defines the specific type of content or intended application of the content. **Note** If your SCORM Manifest file contains resource type metadata, the **Resource Types** field is automatically populated during import.	No

5. You are ready to select the file to import.

In the provided field, enter a URL pointing to the CSF or IMS Manifest file already deployed on a content server.

Note The SCORM Redirector must be installed on the content server machine.

6. Click **Save** to parse the file and create/save your content object.

Editing SCORM Content with Content Builder

After importing SCORM content you can edit the content using Content Builder. This allows you to make the following types of modifications:

- Add new SCOs
- Remove SCOs
- Change the properties for existing SCOs (includes changing a URL to point to a different content resource)

After saving your content object, the **Edit with Content Builder** link appears on the ***Content Object Details*** page.

Click the **Edit with Content Builder** link to launch the Content Builder environment and edit the content.

Launching SCORM Content

When a learner launches SCORM content, Saba launches the Saba Player delivery environment and plays the content inside the player environment.

When learners access content in Saba Player, they first see a Table of Contents for the content, which displays the list of SCOs defined for the course. To start viewing the content, learners can:

- Click **Begin** to see the first SCO in the content hierarchy, or
- Select a SCO from the Table of Contents

When the learner selects a SCO, Saba calls the selected content resource using the URL extracted from the SCORM CSF file or IMS Manifest file and displays the content inside Saba Player. To exit the content, learners can click the **Exit** button in the Control Panel.

Runtime communications between Saba and the content application are handled using the SCORM JavaScript API. Initially, Saba passes learner profile and session information to the content application as well as progress and status information about any previous attempts made by the learner. As the learner progresses through the content, the content application sends back results information, including completion status, scores obtained on any quizzes or tests, attempts, time spent, and bookmarks. On exit, the content application sends a message to Saba indicating that the learner is finished.

Viewing Learner Results

Upon exiting content, the learner returns to the ***Enrollments*** page. The ***Enrollments*** page for a learner (as well as the ***Transcript*** page) can be viewed by both the learner and the learner's manager.

The page displays the following results information for each catalog item:

Table 2-1: *Information Provided on Enrollments and Transcript Pages*

Field	Description
Status	On the ***Enrollments*** page, the status value reflects the order status. It can have the following values: • Open — Confirmed • Open — Unconfirmed • Open — Waitlisted • Open — Backordered • Open — Shipped • Biiled — Normal • Delivered — Normal **Note** For more information on these order statuses, see the Saba *Provider Guide*. On the ***Transcript*** page, the status value indicates whether the learner completed the item successfully or unsuccessfully. Specifically, it can have the following values: • Successful • Unsuccessful • Dropped
Score	Score reported by the content for the learner's most recent attempt. The score is expressed as a percentage. **Note** For SCORM content with multiple SCOs, a score is reported for each SCO. To calculate an overall score for the content, Saba adds the scores reported by each SCO and uses the total number of points as the overall score. For information on this rollup method, see "Score Rollup" on page 26.
Grade	Grade for the learner, which is manually recorded by the class instructor. **Note** This value applies only to instructor-led classes and not to web-based content.

Additionally, the Enrollments page provides a **View Results** icon, which displays the ***View Results*** page where learners can view detailed results information for a catalog item.

View Results Page

Clicking the **View Results** icon opens a page that displays detailed results information for the content.

For SCORM-compliant content, the results page displays the following information:

Table 3: *Information on View Results Page*

Field	Description
Lesson	For SCORM content with multiple SCOs, this field displays the name for each SCO. For SCORM content with a single SCO, this field is left blank.
Status	Displays the completion status reported by the content for the learner's most recent attempt. The completion status can have any of the following values: • Passed • Completed • Failed • Browsed • Incomplete • Not Attempted Any time the score reported by the content is equal to or greater than the mastery score reported by the content, Saba automatically sets the completion status to **Passed**. Saba uses this status value to determine whether the catalog item should be automatically marked complete and moved from the learner's Enrollments page to the learner's Transcript. For more information on automatic completion marking, see "Automatic Completion Marking" on page 27. **Note** For SCORM content with multiple SCOs the completion status is reported for each SCO.
Credit	Indicates whether or not the content is intended to be taken for credit, as reported by the content. **Note** For SCORM content with multiple SCOs this information is provided for each SCO.
Score	Displays the score reported by the content for the learner's most recent attempt. **Note** For SCORM content with multiple SCOs the score is reported for each SCO.
Mastery Score	Displays the score, as reported by the content, that is required for mastery of the content. **Note** For SCORM content with multiple SCOs the mastery score is reported for each SCO.

Table 3: *Information on View Results Page*

Field	Description
Max Score	Displays the maximum possible score, as reported by the content. **Note** For SCORM content with multiple SCOs the maximum score is reported for each SCO.
Attempts	Displays the number of times the learner has launched the content. **Note** For SCORM content with multiple SCOs the number of attempts is reported for each SCO.
Time	Displays the total time the learner has spent in the content across all attempts. **Note** For SCORM content with multiple SCOs the time spent is reported for each SCO.
Interactions	Interactions data is detailed results information about the learner's responses to questions on a test. If the content reports this information, Saba records it. Clicking the View Interactions link opens the Interactions page, which displays the following information about each question for which interactions data is provided: • Question ID • Question type (multiple choice, true/false, etc.) • Learner response • Result (correct or incorrect) • Weighting of question • Time spent on question • Date/time stamp for interaction **Note** For SCORM content with multiple SCOs the time spent is reported for each SCO.

Score Rollup

Score rollup for SCORM content refers to the process of taking the scores reported for the lesson or lessons (SCOs) within the content and rolling them up into an overall score for the catalog item.

For content with a single SCO, the overall score for the catalog item will always be the same as the score reported for the single SCO.

For content with multiple SCOs, the system uses the following algorithm to calculate overall score for the catalog item:

1. Discard all SCOs that have a NULL score.
2. Count the number of SCOs for which the value of score is non-NULL and set the count to a variable.
3. Add the scores reported by each SCO with a non-NULL score.
4. Divide the sum of Step 3 by the count in Step 2.
5. Round up to the nearest whole number.

For example, if a SCORM-compliant course with 5 SCOs reports the following results:

SCO	Score
SCO-1	NULL
SCO-2	5
SCO-3	90
SCO-4	NULL
SCO-5	150

Saba will calculate the overall score as follows:

```
5+90+150 = 245
245/3 = 82
```

Marking Completion

Marking completion of a catalog item triggers the moving of the catalog item from the learner's Enrollments page to the learner's Transcript.

Marking an item complete consists of:

- Indicating success or non-success
- Specifying the completion date
- Optionally reporting an overall score

If an item is marked complete ***with success***, Saba credits the learner's profile with any competencies or certifications associated with the item. If the item is marked complete ***without success***, the competency and certification credits are not granted to the learner.

Catalog items with SCORM content can be marked complete by any of the following methods:

- Automatic Completion Marking
- Learner Marks Completion
- Manager Marks Completion

Automatic Completion Marking

Completion marking refers to the process of polling the status value reported for the content or for all the lessons (e.g. SCOs) within the content (if the content contains multiple lessons) to determine an overall status value for the catalog item. The overall status value is displayed on the Enrollments page and is used to trigger automatic movement of the item to the Transcript page.

Note Classes never move automatically to the Transcript. Classes only move to the Transcript when instructors or administrators mark them complete.

Saba uses the following algorithm to calculate the overall status value and determine whether to move the item to the Transcript:

- If ***all*** lessons are marked 'Passed' or 'Complete':
  - Change the overall status value for the catalog item reported on the Enrollments page to 'Completed – Successful'.
  - Move the item to the Transcript.
  - Credit the learner's profile with any competencies and certifications associated with the catalog item.
- If ***all*** lessons are marked 'Failed':
  - Change the overall status value for the catalog item reported on the Enrollments page to 'Completed – Unsuccessful'.
  - Move the item to the Transcript.
  - Do ***not*** credit the learner's profile with any competencies and certifications associated with the catalog item.

- For ***any*** other combination of lesson statuses, leave the catalog item status unchanged and do ***not*** move the item to the Transcript.

Reattempting Content in the Transcript

Once the item moves to the Transcript, the learner can continue to launch and take the content. Saba will track results for each attempt and display them on the History page of the Transcript. The line item of record in the Trabscript does not change, ***unless*** the learner is able to pass the content through a subsequent attempt. In other words, if the learner has received a status of 'Completed-Unsuccesful', s/he can change his status to 'Completed-Successful' through subsequent attempts; however a succesful status cannot be changed, even if the learner fails the subsequent attempt(s).

Learner Marks Completion

Depending on the configuration of a system-wide business called "Allow learners to mark learning complete", learners may or may not have the ability to mark completion for catalog items with launchable/downloadable content.

If learners are given the ability to mark learning complete, they can do so from the ***Enrollments*** page. As soon as a learner marks an item complete, it moves to the learner's ***Transcript*** page. Once it moves to the transcript, learners can no longer mark the item complete, even if the item has been marked as complete without success.

However, from the ***Transcript*** page, learners can continue to launch and use the content, and Saba will continue to record results for the content in the learner's Transcript. The most recent results are always displayed as the current record in the learner's Transcript. All previous records are stored on the History page, which can be accessed by clicking the View History icon on the Transcript page.

Manager Marks Completion

The learner's manager always has the ability to mark completion for catalog items with launchable/downloadable content. Managers can mark items complete both from the learner's Enrollments page and from the learner's Transcript. Marking complete from the Transcript page enables the learner's manager to override the status and score provided for an item that was marked complete either automatically or by the learner himself. This provides a correction workflow and acts as a safeguard against mistakes.

If the content was marked complete ***without success*** when it was moved from the Enrollments page, the learner's manager can update the status to success, causing Saba to credit the learner's profile with any competencies or certifications associated with the item. However, if the content was marked complete ***with success*** when it was moved, this cannot be undone, even if the manager downgrades the learner's completions status and score.

Marking Complete

To mark a catalog item complete, click the **Mark Complete** icon on the ***Enrollments***/***Transcript*** page. This opens a page with the following fields:

Table 4: *Fields on Mark Completion Page*

Field	Description
Success	Select **Yes** or **No** to indicate whether the catalog item was completed with success. Marking an item complete with success causes Saba to credit the learner's profile with any competencies or certifications associated with the item. Marking an item complete without success leaves the learner's profile unchanged.
Completion Date	Use the calendar picker to select the date on which the learner completed the catalog item.
Score	Specify a score that will appear on the learner's Transcript. **Note** This field is optional. If no score is specified, Saba uses the score automatically reported by the content as the score to display on the learner's Transcript. If the content did not report a score and no score was specified during the mark complete operation, no score will appear for the item on the learner's Transcript page.